Lakeview, Oregon, Disposal Site

Long-Term Surveillance and Maintenance Program

U.S. Department of Energy
Grand Junction Office

FACT SHEET

The Grand Junction Office has provided cost-effective and efficient stewardship for more than 10 years

Overview

Uranium ore was processed at Lakeview, Oregon, between 1958 and 1974. The milling operations created process-related waste and tailings, a sandlike material containing radioactive materials and other contaminants. The U.S. Department of Energy (DOE) encapsulated the tailings in an engineered disposal cell in 1988.

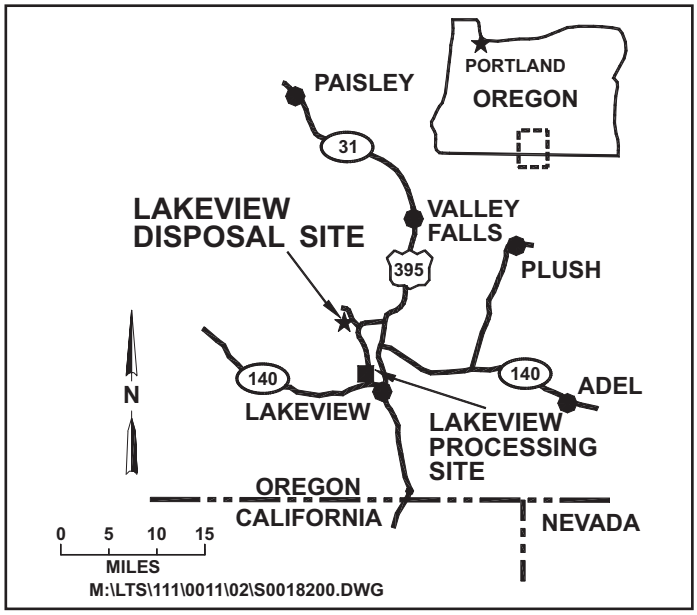
The U.S. Nuclear Regulatory Commission included the Lakeview Disposal Cell under general license in 1995. DOE is responsible, under the general license, for the long-term custody, monitoring, and maintenance of the site. The DOE Long-Term Surveillance and Maintenance (LTSM) Program at the DOE Grand Junction (Colorado) Office is responsible for the long-term safety and integrity of the disposal site.

In 1988, DOE established the LTSM Program to provide stewardship of disposal sites that contain low-level radioactive material after completion of environmental restoration activities. The mission of the LTSM Program is to ensure that the disposal cells continue to prevent release of contaminated materials to the environment. These materials will remain potentially hazardous for thousands of years. As long as the cells function as designed, risks to human health and the environment are negligible.

The LTSM Program maintains the safety and integrity of the disposal cell through periodic monitoring, inspections, and maintenance; serves as a point of contact for stakeholders; and maintains an information repository at the DOE Grand Junction Office for sites in the LTSM Program.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act in 1978 (Public Law 95–604), that specified remedial action at 24 inactive millsites where uranium was produced for the Federal Government. DOE remediated these sites under the Uranium Mill Tailings Remedial Action Project and encapsulated the radioactive material in U.S. Nuclear Regulatory Commission-approved disposal cells. Cleanup standards were promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR) Part 192. The U.S. Nuclear Regulatory Commission license was issued in accordance with 10 CFR 40.



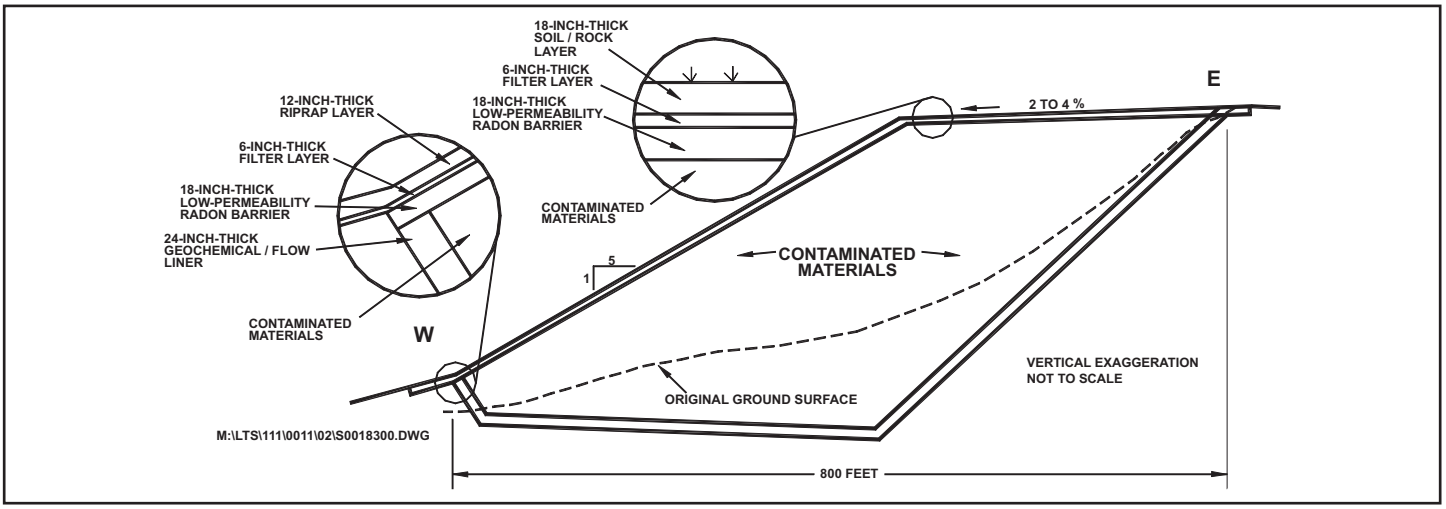
Lakeview Disposal Site

The Lakeview Disposal Site is approximately 7 miles northwest of the town of Lakeview in Lake County, Oregon. The predominant land use in the area is grazing; the region is sparsely populated.

The Lakeview mill was owned and operated by the Lakeview Mining Company from 1958 to 1961, Kermac Nuclear Fuels Corporation from 1961 to 1968, and by Atlantic Richfield Company from 1968 to 1974. Uranium was extracted from ore mined at the nearby White King and Lucky Lass mines, creating tailings and other contaminated materials.

The U.S. Nuclear Regulatory Commission and the State of Oregon concurred in the DOE decision to move the tailings to the Lakeview Disposal Site and place the tailings in a U.S. Environmental Protection Agency-compliant disposal cell. Remedial action began in 1986 and was completed in October 1989. All the radioactive material from the former millsite, the demolished mill structures, and contaminated vicinity properties was transported to and placed in the disposal cell. The disposal cell contains 736,000 tons of contaminated material, with a total activity of 42 curies of radium-226.

The cell is situated near the northern end of Goose Lake Valley, a large flat mountain valley at an elevation of 4,950 feet above sea level. Vegetation consists of pine



West-East Cross Section of Lakeview Disposal Cell

forest in the higher mountain areas and grasses, sage, and scrub brush in the foothills and valleys.

The disposal site is underlain by as much as 1,000 feet of unconsolidated to consolidated Quaternary sands, silts, and lacustrine (lake bed) clays. The depth to bedrock is undetermined, but is estimated to be greater than 1,000 feet. Depths to groundwater beneath the disposal cell are approximately 100 feet.

Cell Design

The disposal cell measures approximately 1,050 feet by 800 feet, and occupies an area of 16 acres on the 40-acre site. A posted wire fence surrounds the cell.

The cell is on a hillside and was excavated to contain a portion of the contaminated materials below the original grade. Contaminated materials were placed on a liner consisting of low-permeability clayey soil. The liner has the capacity to neutralize or absorb contaminants that might leach out of the cell or to exchange contaminant ions with nonhazardous ions that are natural constituents of the liner soils.

An 18-inch-thick radon barrier, consisting of clayey soil, was placed over the contaminated materials to prevent precipitation from percolating through the contaminated materials into the underlying soils and to reduce radon emissions. The radon barrier is covered by a 6-inch filter layer. For erosion protection, the side slope is covered with 12 inches of riprap (durable rock with a median diameter of 3 inches). The top slope is covered with an 18-inch-thick rock-soil matrix that supports a native grass turf.

The cell design promotes rapid runoff of precipitation to minimize leachate. Runoff flows down the 20-percent side slopes into a rock-lined diversion channel on the north and a rock-lined toe drain on the west. The channel and the drains are armored with rock to dissipate energy and to reduce the potential for erosion.

LTSM Program Activities

The LTSM Program manages the site according to a long-term surveillance plan (LTSP) prepared specifically for the Lakeview site. Under provisions of the LTSP, the LTSM Program (1) conducts annual inspections of this site to evaluate the condition of surface features, (2) performs site maintenance as necessary, and (3) continues to monitor groundwater. Under provisions of the LTSP, the LTSM Program will monitor groundwater as necessary to verify that contaminants are not escaping from the disposal cell and appearing in the groundwater.

The disposal cell at Lakeview is designed and constructed to last for 200 to 1,000 years. However, the general license has no expiration date, and DOE understands that its responsibility for the safety and integrity of the Lakeview site will last indefinitely.

Contacts

For more information about the LTSM Program or about the Lakeview Disposal Site, contact

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http://www.gjo.doe.gov/programs/ltsm